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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,835	08/24/2006	Masanori Ogawa	2710/76787	1492

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EXAMINER	
CHOI, PETER Y	
ART UNIT	PAPER NUMBER
1794	
MAIL DATE	DELIVERY MODE
07/02/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,835	OGAWA ET AL.	
	Examiner	Art Unit	
	PETER Y. CHOI	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5,16 and 18-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5,16 and 18-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on March 23, 2009, has been entered.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 2, 5, 16, and 18-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 2, 5, 16, and 18-26, claim 1 recites that the fiber sheet and porous material are bonded together by a hot melt adhesive powder scattered on the fiber sheet or the porous material in a claimed amount to secure a claimed ventilation resistance. It is unclear whether the amount of adhesive powder to secure a claimed ventilation resistance is directed only to the scattering of the powder on the surface of the porous material or whether the claimed limitations apply to scattering the powder on either the fiber sheet or the porous material.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 16 and 18-26 are rejected under 35 U.S.C. 103(a) as obvious over WO 02/038374 to Ogawa (the translation presented as US Pub. No. 2004/0100125 to Ogawa) in view of USPN 6,291,068 to Wang and US Pub. No. 2004/0053003 to Coates.

Regarding claims 1, 16 and 18-26, Ogawa teaches a fire resistant laminated sheet comprising a fiber sheet and a porous material, the fire resistant fiber sheet consisting of a fiber sheet in which fire retardant capsules, consisting of a fire retardant powder are added, and the fiber sheet is bound with a sulfomethylated and/or sulfimethylated phenolic resin which is added to the fiber sheet in an amount of between 5 and 200% by mass relative to the mass of the fiber sheet without the capsules, wherein the fire retardant fiber sheet and the porous material are bonded together (see entire document including paragraphs 0001-0003, 0013-0019, 0024-0031, 0035-0040, 0052, Examples 1 and 2, Claims 1-7).

Regarding claims 1, 16 and 18-26, Ogawa does not appear to teach that the fire retardant capsules consist of a water soluble fire retardant powder covered with a water insoluble synthetic resin shell. However, Ogawa teaches the inclusion of a powder such as a fire retardant or an antiflame agent to the sulfomethylated or sulfimethylated phenolic resin (Ogawa, paragraph 0031). Since Ogawa is silent in regards to the fire retardant, it would have been necessary and therefore obvious to look to the prior art for conventional fire retardant compositions added to

molded articles. Wang provides this conventional teaching, showing that it was known in the molded article art to incorporate a thermoplastic resin-coated ammonium polyphosphate flame retardant comprising a core material encapsulated by a water insoluble resin (Wang, column 1 line 7 to column 2 line 56, column 4 line 58 to column 6 line 50, column 7 lines 23-33, column 9 lines 28-58, column 15 line 45 to column 16 line 20). Wang teaches that the core material is water-soluble or can be made hardly water-soluble. Wang teaches that the thermoplastic resin-coated ammonium polyphosphate flame retardant is excellent in water resistance, resistance to organic solvents and chemical resistance, and has a high affinity for thermoplastic resins. Additionally, when incorporated into a thermosetting resin or thermoplastic resin-based molding material, the flame retardant has a high hygroscopicity-controlling effect. It would have been obvious to one of ordinary skill in the molded articles art at the time the invention was made to form the fiber sheet of the prior art, wherein the fire retardant comprises the flame retardant as taught by Wang, motivated by the desire of forming a conventional fiber sheet with a fire retardant known in the art to be predictably suitable for use in molded articles since the flame retardant is excellent in water resistance, resistance to organic solvents and chemical resistance, and has a high affinity for thermoplastic resins in addition to providing a high hygroscopicity-controlling effect.

Regarding claims 1, 16 and 18-26, the prior art does not appear to teach that the fiber sheet and the porous material are bonded together by a hot melt adhesive powder scattered on a surface of the fire resistant fiber sheet or the porous material in an amount in the range between 1 to 100 g/m^2 to secure a ventilation resistance of the fire resistant laminated sheet in the range between 0.1 and 100 kPa·s/m to give the fire resistant laminated sheet an excellent acoustic

property. However, Coates teaches a substantially similar thermoformable acoustic sheet suitable for use as head linings or as automobile interiors, comprising a web of fibers which are film bonded or adhesive powder bonded to two nonwoven fabrics, wherein it is contemplated that the sheet may additionally comprise a flame retardant treatment, and wherein the amount of adhesive powder is in the range 10 to 80 g/m^2, and wherein the resulting sheet has an air flow resistance of between 275 and 1100 mks Rayl (Coates, paragraphs 0001-0033, 0043, 0044, Examples 1-10). It should be noted that 1 Rayl is equal to 1 Pa·s/m. Coates teaches that the amount of adhesive treatment can be adjusted to control the total air flow resistance of the acoustic sheet. It would have been obvious to one of ordinary skill in the acoustic insulation art at the time the invention was made to form the acoustic insulation of the prior art, wherein the adhesive comprises an adhesive film or an adhesive powder in the amounts as taught by Coates and resulting in the air flow resistance as taught by Coates, motivated by the desire of forming a conventional acoustic insulation material with adhesives known in the art as functionally equivalent and predictably suitable for use in acoustic insulation material based on the desired air flow resistance, and having an air flow resistance known in the art to be predictably suitable for acoustic insulation material and predictably resulting from the prior art acoustic insulation. It should be noted that in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art a prima facie case of obviousness exists.

Regarding claims 16 and 23, the prior art teaches a molded article wherein the fire resistant fiber sheet is molded into a prescribed shape (Ogawa, paragraph 0040; Coates, paragraphs 0001-0033).

Regarding claims 18-22, the prior art teaches a laminated material wherein other porous sheet(s) is (are) laminated onto one or both sides of the fire resistant fiber sheet (Ogawa paragraphs 0035-0040; Coates, paragraphs 0001-0033).

Regarding claims 19-22, the prior art teaches that the porous sheet(s) is (are) laminated onto one or both sides of the fire resistant fiber sheet through thermoplastic resin film(s) that has (have) a thickness of between 10 and 200 μm (Ogawa, paragraph 0003).

Regarding claim 20, the prior art teaches that a holt melt adhesive powder is scattered onto one or both sides of the fire resistant fiber sheet in an amount of between 1 and 100 g/m^2 and the porous material sheet(s) is (are) laminated onto the fiber sheet through the scattered layer of hot melt adhesive powder (Coates, paragraphs 0001-0033, 0043, 0044, Examples 1-10).

Regarding claims 21 and 22, the prior art teaches a laminated material is molded into a prescribed shape (Ogawa, paragraph 0040; Coates, paragraphs 0001-0033).

Regarding claim 22, the prior art does teaches that the ventilation resistance of the molded article is in the range of between 0.1 and 1.1 kPa · s/m (Coates, paragraphs 0001-0033, 0043, 0044, Examples 1-10). It should be noted that in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art a prima facie case of obviousness exists.

Regarding claim 23, the prior art teaches a fire resistant acoustic material for cars made of a molded article (Ogawa, paragraph 0040).

Regarding claims 24 and 26, the prior art teaches that the resistant fiber sheet is press-molded with heating, the fiber sheet comprising a fiber having a low melting point of below 180°C (Ogawa, paragraphs 0001-0003, 0013-0019, 0024-0031, 0035-0040, 0052, Examples 1 and 2, Claims 1-7; Coates, paragraphs 0001-0033). It should be noted that Applicants'

specification at page 6 teaches that fibers such as polyethylene fiber, polyester fiber, polyamide fiber, and polyvinyl chloride fiber have a low melting point of below 180°C.

Regarding claims 24 and 26, the prior art does not appear to specifically teach that the fire retardant capsules are fixed in the fiber sheet by the fiber having a low melting point during press molding with heating. However, it is reasonable for one of ordinary skill in the molded articles art to presume that the fire retardant capsules are fixed in the fiber sheet by the fiber having a low melting point during press molding with heating. Ogawa teaches that the sulfomethylated and/or sulfimethylated phenolic resin is modified or mixed with a fire retardant. Additionally, Wang teaches that the thermoplastic resin-coated flame retardant has a high affinity for thermoplastic resins. Additionally, Ogawa teaches that the fire resistant fiber sheet and interior material is molded by hot-pressing after heating or the like, before, when or after the synthetic resin impregnated nonwoven fabric is bonded to the base material (Ogawa, paragraph 0040). Ogawa teaches that the nonwoven fabric may be attached then molded at 180°C for 60 seconds (Ogawa, Example 1) which appears to be substantially similar to the hot pressing disclosed in Applicants' specification (*see for example* Applicants' specification, Examples 1-13). Therefore, the sheet of the prior art comprises a phenolic resin-impregnated sheet, wherein fire retardant capsules are included in the phenolic resin, and wherein the resulting sheet is molded by hot-pressing, which would appear to fix the fire retardant capsules in the fiber sheet. Additionally, since Applicants' specification teaches that fibers such as polyethylene fiber, polyester fiber, polyamide fiber, and polyvinyl chloride fiber have a melting point of below 180°C, it naturally flows from the teachings of the prior art that one of ordinary skill in the art would expect the fibers to additionally fix the fire retardant capsules in the fiber sheet. Since the

prior art teaches a substantially similar structure and composition (a molded fiber resistant fiber sheet comprising the claimed fire retardant capsule and sulfimethylated and/or sulfomethylated phenolic resin) as the claimed invention, the fire retardant capsules appear to inherently be fixed in the fiber sheet by the fiber having a low melting point during press molding with heating, absent evidence to the contrary.

Regarding claims 25 and 26, the prior art teaches that the water soluble fire retardant powder is selected from the group consisting of ammonium phosphate, ammonium polyphosphate, ammonium sulfamate, ammonium sulfate and ammonium silicate (Wang, column 1 line 7 to column 2 line 56, column 4 line 58 to column 6 line 50, column 7 lines 23-33, column 9 lines 28-58, column 15 line 45 to column 16 line 20).

6. Claim 2 is rejected under 35 U.S.C. 103(a) as obvious over Ogawa in view Wang and Coates, as applied to claims 1, 16 and 18-26 above, and further in view of USPN 6,362,269 to Ishihata.

Regarding claim 2, the prior art does not appear to teach that the fire retardant capsules are added to the fiber sheet in an amount of between 5% and 80% by mass relative to the mass of the fiber sheet without the capsules. Since the prior art is silent with regards to the specific amount of fire retardant, it would have been necessary and thus obvious to look to the prior art for conventional add-on amounts in molded articles. Ishihata provides this conventional teaching showing that it is known in the molded articles art to form molded articles comprising an aromatic resin, fibers and flame retardant particles comprising a particle encapsulated in a resin (Ishihata, column 1 lines 5-9, column 3 lines 1-35, column 15 line 34 to column 17 line 36,

column 23 line 12 to column 26 line 19). Ishihata teaches that the flame retardant particles are added to the resin, wherein the amount of flame retardant particles added to the resin are between 0.1 to 25 parts by weight (Ishihata, column 26 lines 8-20). Therefore, it would have been obvious to one of ordinary skill in the molded articles art at the time the invention was made to form the fiber sheet of the prior art, with the percentage of flame retardant particles, as taught by Ishihata, motivated by the desire of forming a conventional molded article having fire retardant particles with a percentage of particles known in the art to be suitable for use in molded articles.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa in view Wang and Coates, as applied to claims 1, 16 and 18-26 above, and further in view of USPN 5,188,896 to Suh.

Regarding claim 5, the prior art does not appear to teach that the fibers are hollowed or a mixture of solid and hollowed fibers. However, Suh teaches a thermal insulation comprising hollow thermoplastic fibers and polymeric fibers wherein the fibers are coated with a synthetic resin and a flame retardant (Suh, column 1 lines 13-49, column 4 line 13 to column 5 line 48, Example 3). It would have been obvious to one of ordinary skill in the fire retardant fiber art to form the fire retardant fiber sheet of the prior art, wherein the fibers comprise hollow thermoplastic fibers and polymeric fibers, as taught by Suh, motivated by the desire of forming a conventional fire retardant fiber sheet with fire resistant properties which is lightweight and provides good fire resistance, and such a combination was known and the resulting product predictable at the time the invention was made.

Response to Arguments

8. Applicants' arguments with respect to claims 1, 2, 5, 16, and 18-26 have been considered but are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER Y. CHOI whose telephone number is (571)272-6730. The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Peter Y Choi/
Examiner, Art Unit 1794

/Andrew T Piziali/
Primary Examiner, Art Unit 1794